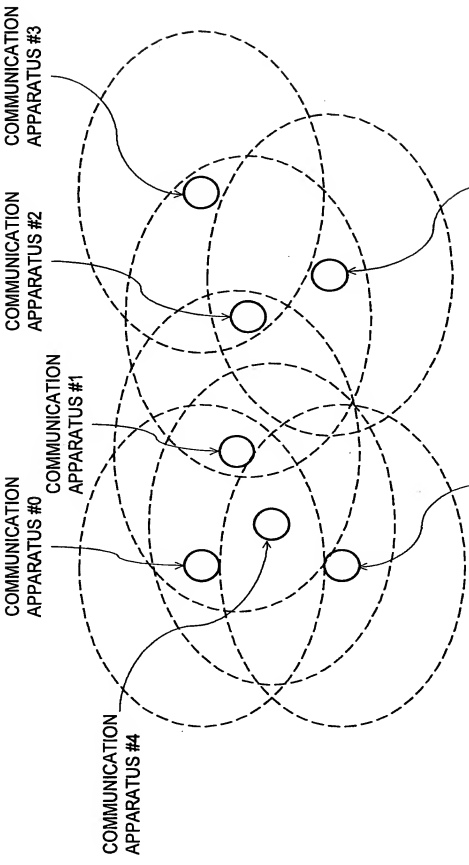
COMMUNICATION APPARATUS #0
COMMUNICATION APPARATUS #1
COMMUNICATION APPARATUS #2
COMMUNICATION APPARATUS #3
COMMUNICATION APPARATUS #4
COMMUNICATION APPARATUS #5
COMMUNICATION APPARATUS #6

FIG. 1

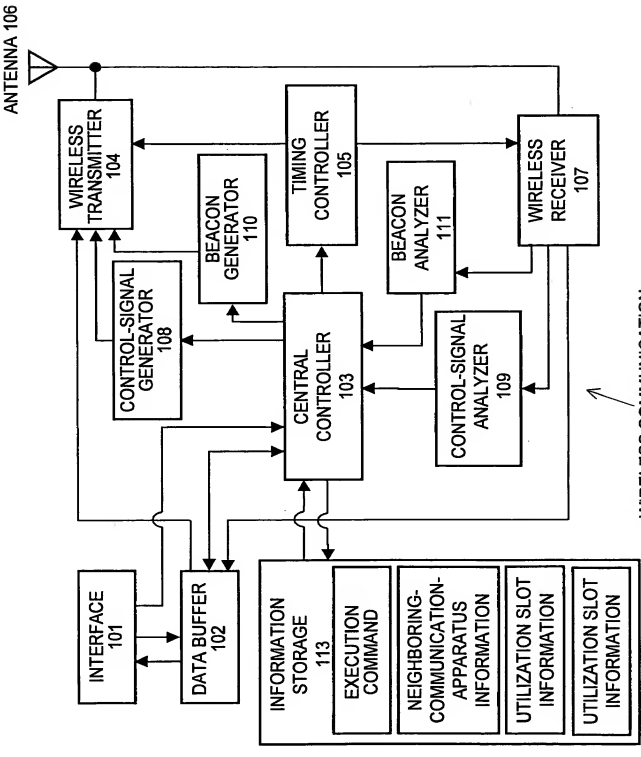
ANTENNA 106
WIRELESS TRANSMITTER 104
BEACON GENERATOR 110
TIMING CONTROLLER 105
WIRELESS RECEIVER 107
CONTROL-SIGNAL GENERATOR 108
BEACON ANALYZER 111
CENTRAL CONTROLLER 103
CONTROL-SIGNAL ANALYZER 109
INTERFACE 101
DATA BUFFER 102
INFORMATION STORAGE 113
EXECUTION COMMAND
NEIGHBORING-COMMUNICATION-APPARATUS INFORMATION
UTILIZATION SLOT INFORMATION
UTILIZATION SLOT INFORMATION
WIRELESS COMMUNICATION APPARATUS 100

FIG. 2

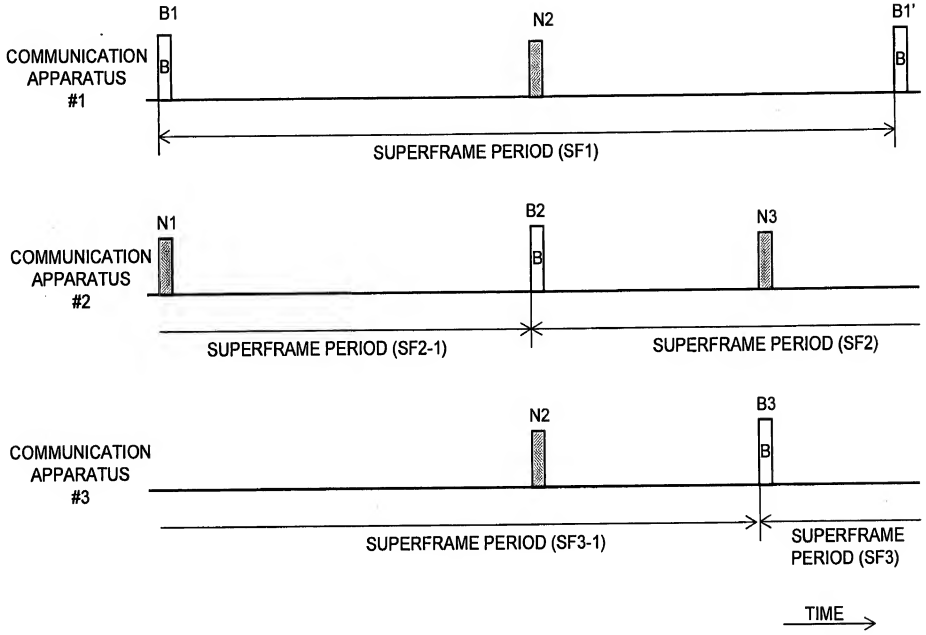

FIG. 3

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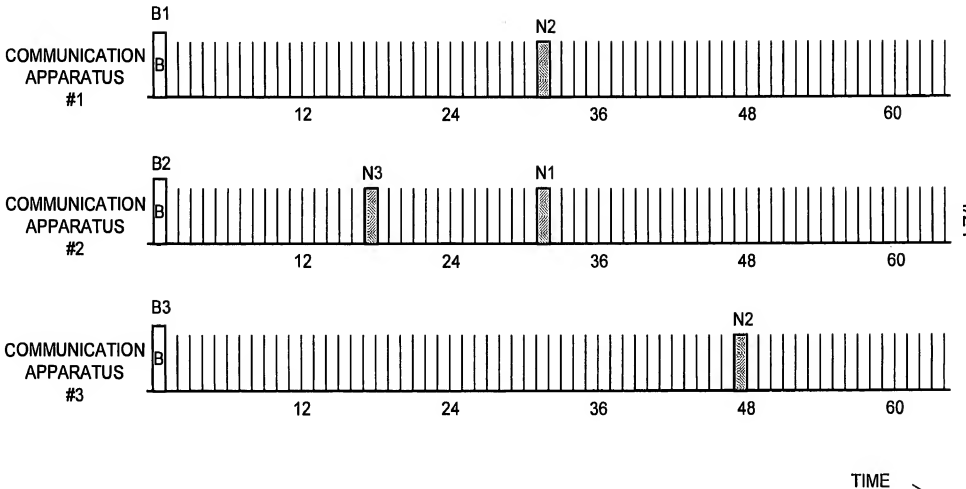

FIG. 4

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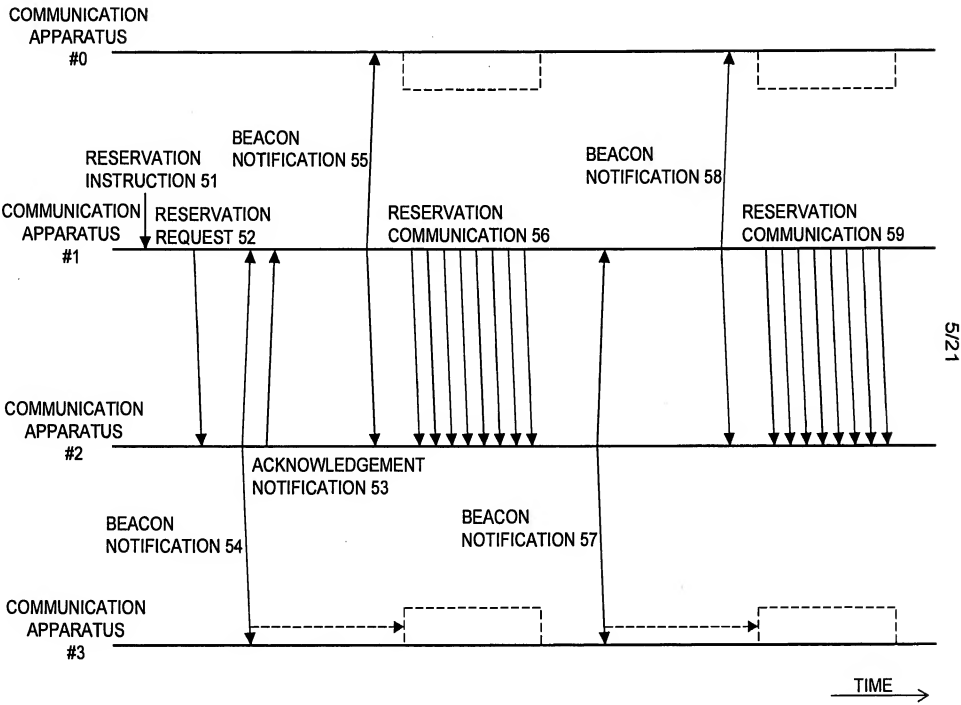

FIG. 5

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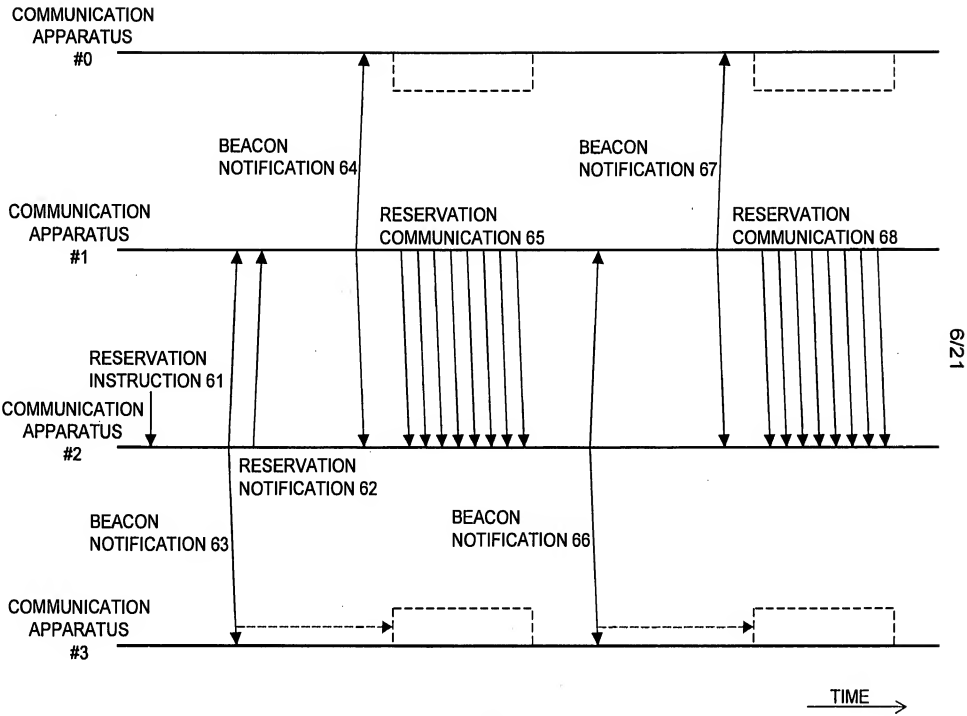

FIG. 6

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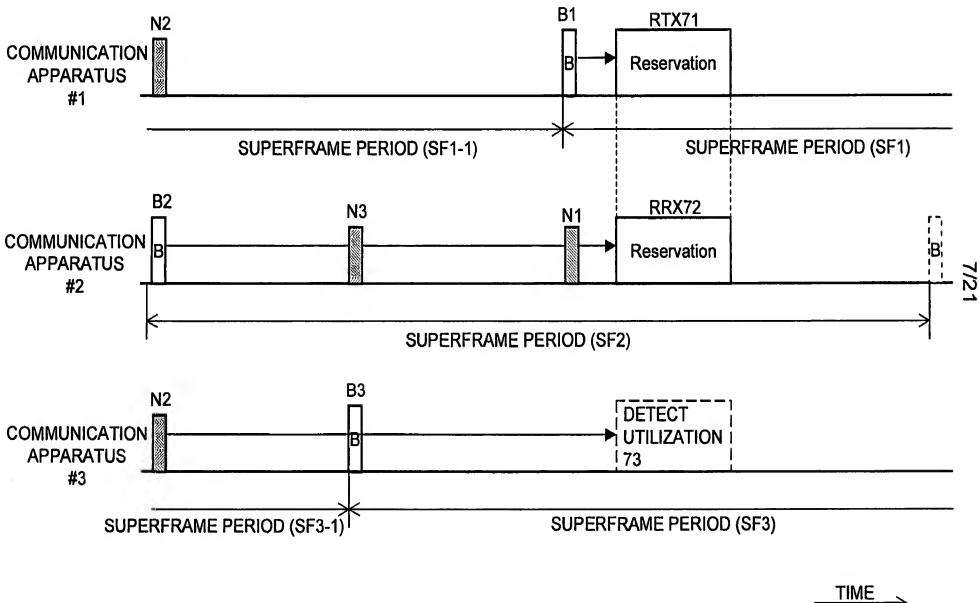

FIG. 7

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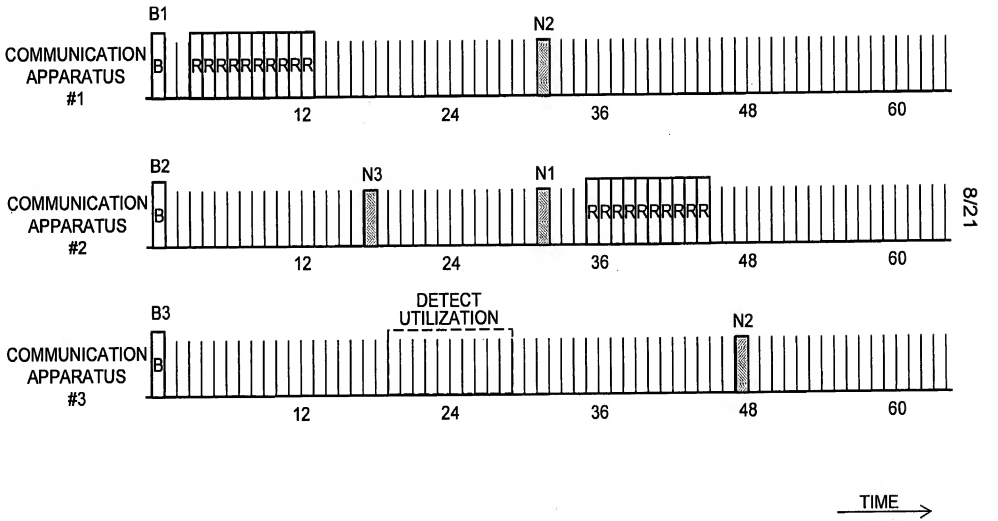

FIG. 8

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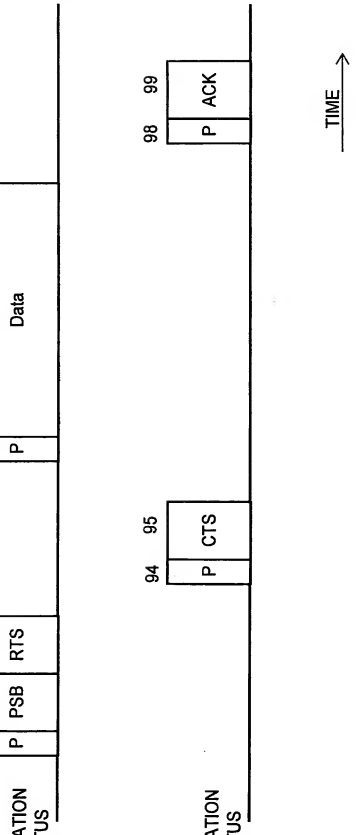
COMMUNICATION APPARATUS #1
COMMUNICATION APPARATUS #2
91
92
93
94
95
96
97
98
99
P
PSB
RTS
CTS
Data
ACK
TIME

FIG. 9

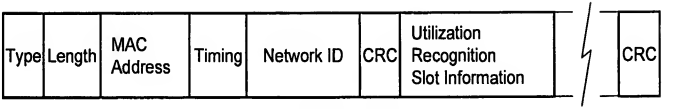

FIG. 10

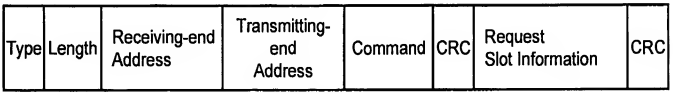

FIG. 11

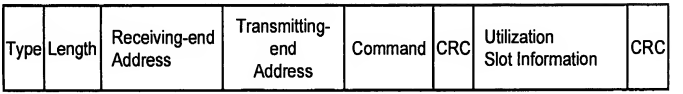

FIG. 12

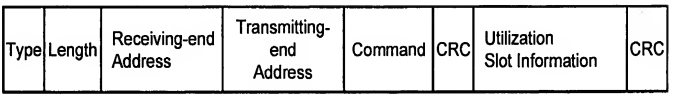

FIG. 13

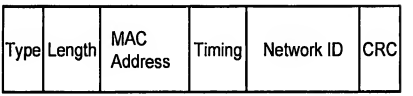

FIG. 14

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Type	Length	Receiving-end Address	Transmitting-end Address	RTS Parameter	CRC

FIG. 15

Type	Length	Receiving-end Address	Transmitting-end Address	CTS Parameter	CRC

FIG. 16

Type	Length	Receiving-end Address	Transmitting-end Address	Attribute	CRC	Data Payload Information	CRC

FIG. 17

Type	Length	Receiving-end Address	Transmitting-end Address	ACK Parameter	CRC

FIG. 18

FIG. 11

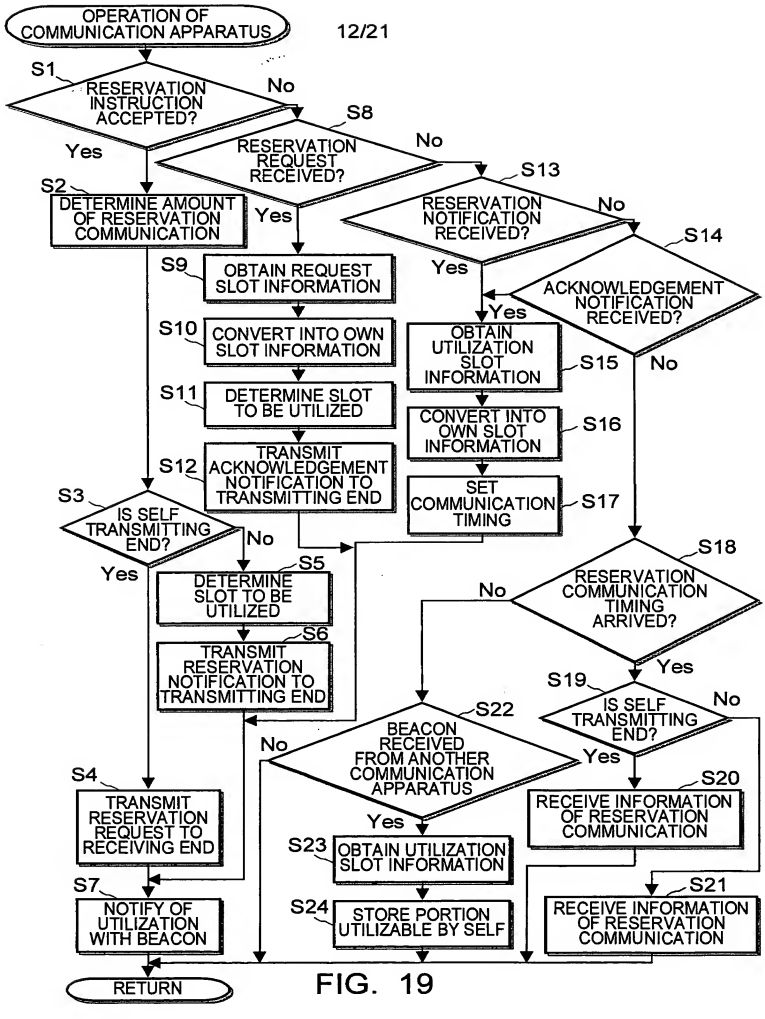
OPERATION OF COMMUNICATION APPARATUS
12/21
S1
RESERVATION INSTRUCTION ACCEPTED?
No
Yes
S8
RESERVATION REQUEST RECEIVED?
No
Yes
S13
RESERVATION NOTIFICATION RECEIVED?
No
Yes
S14
ACKNOWLEDGEMENT NOTIFICATION RECEIVED?
Yes
No
S2
DETERMINE AMOUNT OF RESERVATION COMMUNICATION
S9
OBTAIN REQUEST SLOT INFORMATION
S10
CONVERT INTO OWN SLOT INFORMATION
S11
DETERMINE SLOT TO BE UTILIZED
S12
TRANSMIT ACKNOWLEDGEMENT NOTIFICATION TO TRANSMITTING END
S15
OBTAIN UTILIZATION SLOT INFORMATION
S16
CONVERT INTO OWN SLOT INFORMATION
S17
SET COMMUNICATION TIMING
S3
IS SELF TRANSMITTING END?
No
Yes
S5
DETERMINE SLOT TO BE UTILIZED
S6
TRANSMIT RESERVATION NOTIFICATION TO TRANSMITTING END
S18
RESERVATION COMMUNICATION TIMING ARRIVED?
No
Yes
S19
IS SELF TRANSMITTING END?
No
Yes
S22
BEACON RECEIVED FROM ANOTHER COMMUNICATION APPARATUS
No
Yes
S4
TRANSMIT RESERVATION REQUEST TO RECEIVING END
S20
RECEIVE INFORMATION OF RESERVATION COMMUNICATION
S23
OBTAIN UTILIZATION SLOT INFORMATION
S7
NOTIFY OF UTILIZATION WITH BEACON
S24
STORE PORTION UTILIZABLE BY SELF
S21
RECEIVE INFORMATION OF RESERVATION COMMUNICATION
RETURN

FIG. 19

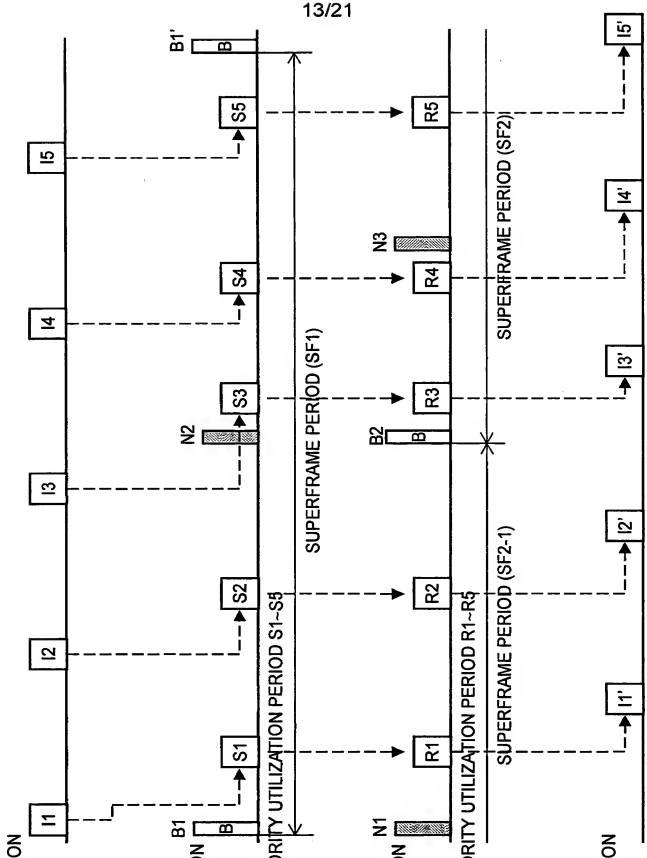
APPLICATION #1
I1
I2
I3
I4
I5
B1
B
S1
S2
S3
S4
S5
B1'
B
N2
COMMUNICATION APPARATUS #1
PRIORITY UTILIZATION PERIOD S1-S5
SUPERFRAME PERIOD (SF1)
N1
R1
R2
R3
R4
R5
B2
B
N3
COMMUNICATION APPARATUS #2
PRIORITY UTILIZATION PERIOD R1-R5
SUPERFRAME PERIOD (SF2-1)
SUPERFRAME PERIOD (SF2)
APPLICATION #2
I1'
I2'
I3'
I4'
I5'
TIME

FIG. 20

APPLICATION #1
COMMUNICATION APPARATUS #1
COMMUNICATION APPARATUS #2
APPLICATION #2
PRIORITY UTILIZATION PERIOD S11–S16
PRIORITY UTILIZATION PERIOD R11–R16
SUPERFRAME PERIOD (SF1)
SUPERFRAME PERIOD (SF2-1)
SUPERFRAME PERIOD (SF2)
I1
I2
I3
I4
I5
I6
I7
I8
I9
I10
I11
I12
I13
I1'
I2'
I3'
I4'
I5'
I6'
I7'
I8'
I9'
I10'
I11'
B1
B1'
B2
N1
N2
N3
S11
S12
S13
S14
S15
S16
R11
R12
R13
R14
R15
R16
TIME

FIG. 21

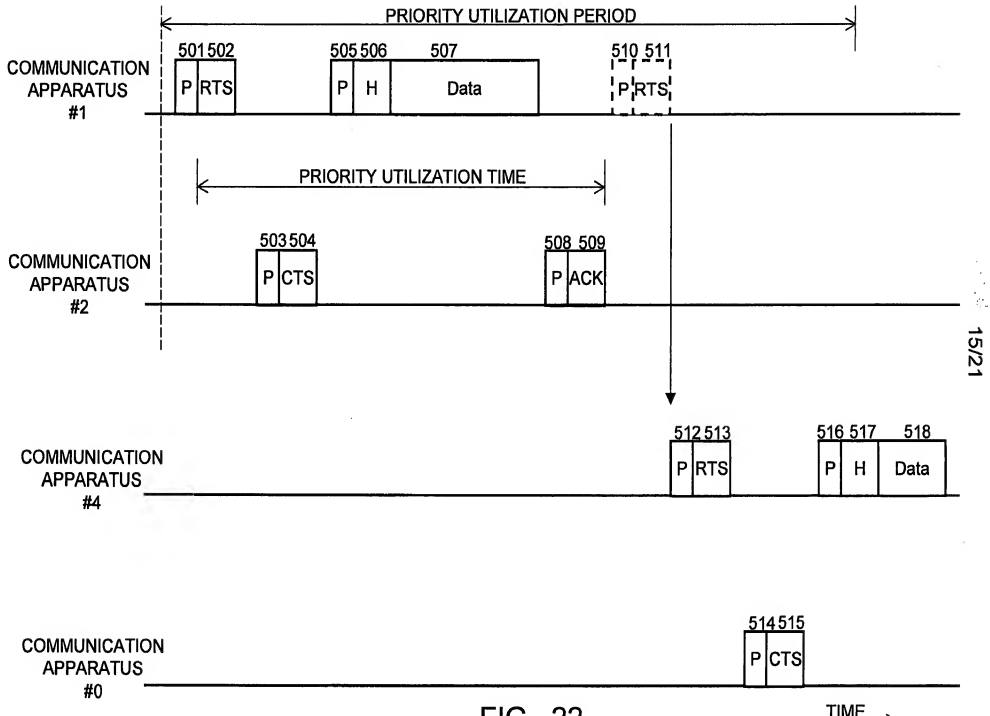

FIG. 22

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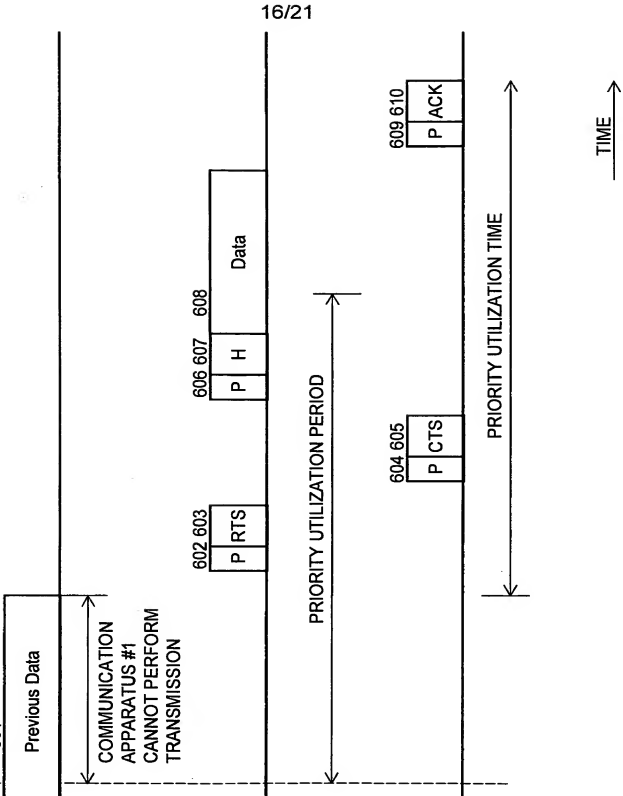
COMMUNICATION APPARATUS #0
COMMUNICATION APPARATUS #1
COMMUNICATION APPARATUS #2
601
Previous Data
COMMUNICATION APPARATUS #1 CANNOT PERFORM TRANSMISSION
602 603
P
RTS
606 607
P
H
608
Data
PRIORITY UTILIZATION PERIOD
604 605
P
CTS
609 610
P
ACK
PRIORITY UTILIZATION TIME
TIME

FIG. 23

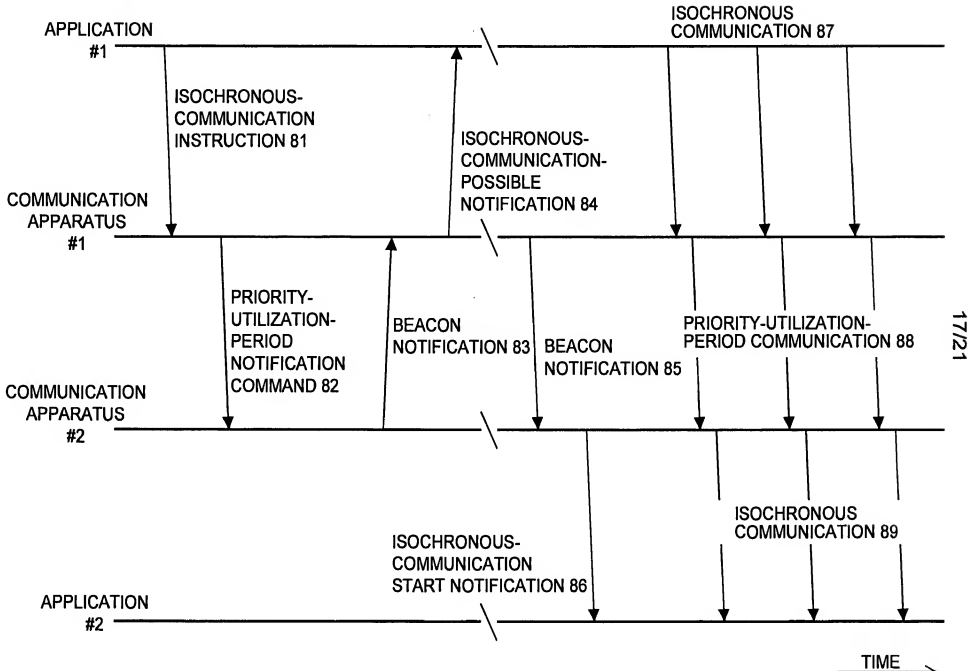

FIG. 24

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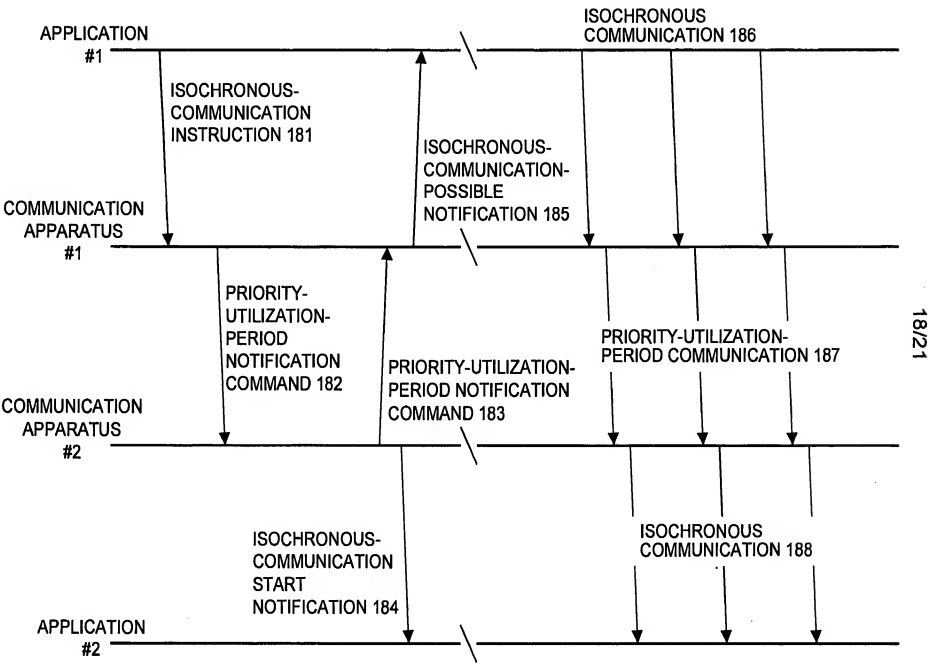

FIG. 25

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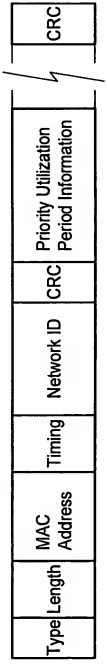
Type
Length
MAC Address
Timing
Network ID
CRC
Priority Utilization Period Information
CRC

FIG. 26

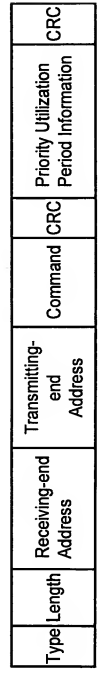
Type
Length
Receiving-end Address
Transmitting-end Address
Command
CRC
Priority Utilization Period Information
CRC

FIG. 27

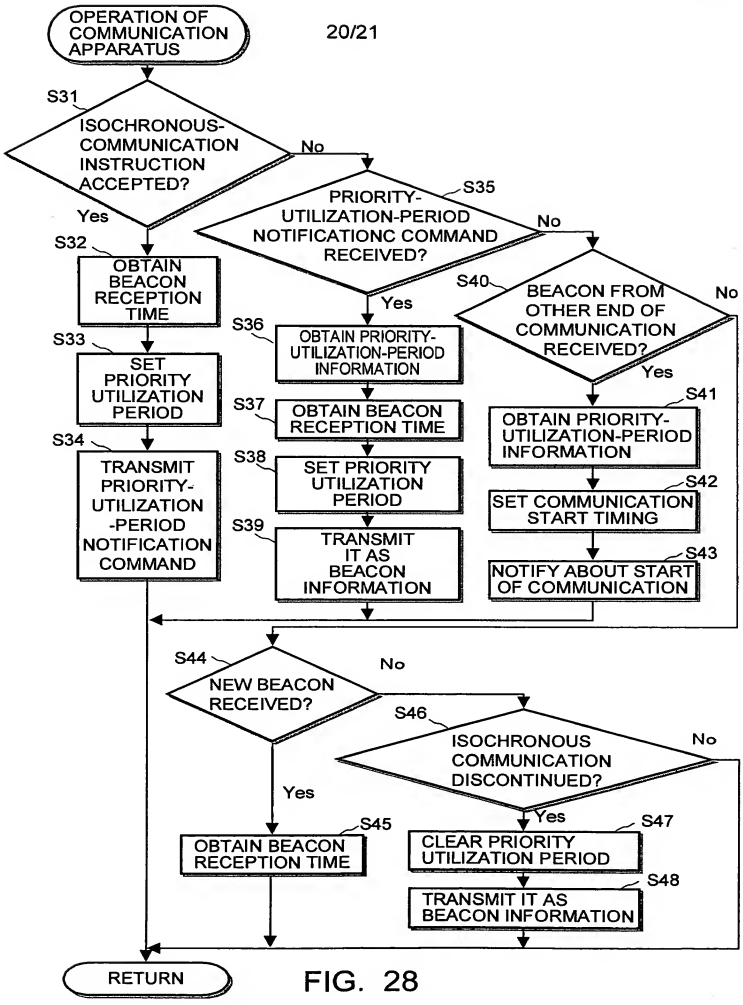
OPERATION OF COMMUNICATION APPARATUS
S31
ISOCHRONOUS-COMMUNICATION INSTRUCTION ACCEPTED?
No
Yes
S35
PRIORITY-UTILIZATION-PERIOD NOTIFICATIONC COMMAND RECEIVED?
No
Yes
S40
BEACON FROM OTHER END OF COMMUNICATION RECEIVED?
No
Yes
S32
OBTAIN BEACON RECEPTION TIME
S33
SET PRIORITY UTILIZATION PERIOD
S34
TRANSMIT PRIORITY-UTILIZATION-PERIOD NOTIFICATION COMMAND
S36
OBTAIN PRIORITY-UTILIZATION-PERIOD INFORMATION
S37
OBTAIN BEACON RECEPTION TIME
S38
SET PRIORITY UTILIZATION PERIOD
S39
TRANSMIT IT AS BEACON INFORMATION
S41
OBTAIN PRIORITY-UTILIZATION-PERIOD INFORMATION
S42
SET COMMUNICATION START TIMING
S43
NOTIFY ABOUT START OF COMMUNICATION
S44
NEW BEACON RECEIVED?
No
Yes
S46
ISOCHRONOUS COMMUNICATION DISCONTINUED?
No
Yes
S45
OBTAIN BEACON RECEPTION TIME
S47
CLEAR PRIORITY UTILIZATION PERIOD
S48
TRANSMIT IT AS BEACON INFORMATION
RETURN

FIG. 28

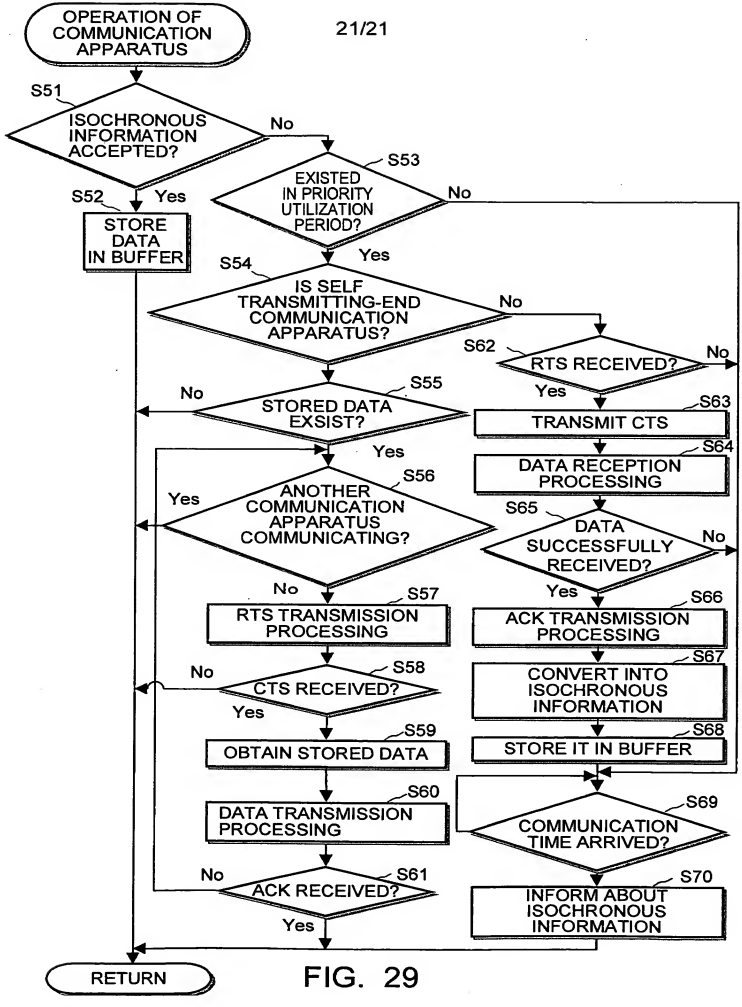
OPERATION OF COMMUNICATION APPARATUS
S51
ISOCHRONOUS INFORMATION ACCEPTED?
No
Yes
S52
STORE DATA IN BUFFER
S53
EXISTED IN PRIORITY UTILIZATION PERIOD?
No
Yes
S54
IS SELF TRANSMITTING-END COMMUNICATION APPARATUS?
No
Yes
S55
STORED DATA EXSIST?
No
Yes
S56
ANOTHER COMMUNICATION APPARATUS COMMUNICATING?
Yes
No
S57
RTS TRANSMISSION PROCESSING
S58
CTS RECEIVED?
No
Yes
S59
OBTAIN STORED DATA
S60
DATA TRANSMISSION PROCESSING
S61
ACK RECEIVED?
No
Yes
S62
RTS RECEIVED?
No
Yes
S63
TRANSMIT CTS
S64
DATA RECEPTION PROCESSING
S65
DATA SUCCESSFULLY RECEIVED?
No
Yes
S66
ACK TRANSMISSION PROCESSING
S67
CONVERT INTO ISOCHRONOUS INFORMATION
S68
STORE IT IN BUFFER
S69
COMMUNICATION TIME ARRIVED?
S70
INFORM ABOUT ISOCHRONOUS INFORMATION
RETURN

FIG. 29